

AMERICAN BEE JOURNAL



GEORGE W. YORK,
Editor.

CHICAGO, ILL., APRIL 17, 1902.

FORTY-SECOND YEAR
No. 16.

WEEKLY



R. C. AIKIN,

Newly-Elected Director of the Nat'l Bee-Keepers' Association.

THE AMERICAN BEE JOURNAL

PUBLISHED WEEKLY BY

GEORGE W. YORK & COMPANY

144 & 146 Erie St., Chicago, Ill.

Entered at the Post-Office at Chicago as Second-Class Mail-Matter.

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National Bee-Keepers' Association

OBJECTS:

- To promote and protect the interests of its members.
- To prevent the adulteration of honey.
- To prosecute dishonest honey-dealers.

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A Celluloid Queen-Button is a very pretty thing for a bee-keeper or honey-seller to wear on his coat-lapel. It often serves to introduce the subject of honey, and frequently leads to a sale.

NOTE.—One reader writes: "I have every reason to believe that it would be a very good idea for every bee-keeper to wear one [of the buttons] as it will cause people to ask questions about the busy bee, and many a conversation thus started would wind up with the sale of more or less honey; at any rate it would give the bee-keeper a superior opportunity to enlighten many a person in regard to honey and bees."

The picture shown herewith is a reproduction of a motto queen-button that we are furnishing to bee-keepers. It has a pin on the underside to fasten it.

Price, by mail, 6 cents; two for 10 cents; or 6 for 25 cents. Send all orders to the office of the American Bee Journal.



FOR GETTING NEW SUBSCRIBERS.

Red Clover Queens FOR 1902 FREE!

Long-Tongue Variety—Warranted Purely Mated

We have arranged with the queen-breeder who furnished Long-Tongue Red Clover Queen for us during the season of 1901, to fill our orders this season. Although fully 95 percent of the unmated queens he sent out were purely mated, this season all that he mails for us will be warranted purely mated.

We want every one of our present subscribers to have one or more of these money-maker Queens. We have received most excellent reports from the queens we supplied last season. And this year our queen-breeder says he expects to be able to send out even better Queens, if that is possible. He is one of the very oldest and best queen-breeders. His bees average quite a good deal the longest tongues of any yet measured. The Breeder he will use is direct from Italy, having imported her himself. Her worker-bees are large, of beautiful color, very gentle, scarcely requiring veil or smoke.

Orders for these fine, "long-reach" Warranted Queens will be filled in rotation—"first come first served"—beginning as early in June as possible. It is expected that orders can be filled quite promptly (even better than the past season), as a much larger number of queen-rearing nuclei will be run. (But never remove the old queen from the colony until you have received the new one, no matter from whom you order a queen).

All Queens will be guaranteed to arrive in good condition, and will be clipped, unless otherwise ordered.

A Warranted Queen for Sending us only TWO NEW YEARLY SUBSCRIBERS.

In order that every one of our subscribers who wants one of these Warranted Queens this season can easily earn it, we will book your order for one queen for sending us the names and addresses of **two new subscribers** to the American Bee Journal and \$2.00; or for sending us **one new subscription** and 30 cents more (or \$1.30), we will mail you a queen; or send us \$1.60 and we will credit your own subscription for one year, and mail you a warranted queen.

This indeed is an opportunity to get a superior Queen, and at the same time help swell the list of readers of the old American Bee Journal.

We are now ready to book the Queen orders, and also to enroll the new subscriptions. Remember, the sooner you get in your order the earlier you will get your Queen. We hope that every one of our present readers will decide to have at least one of these Queens. Address,

GEORGE W. YORK & CO.,

144 & 146 Erie Street, CHICAGO, ILL.

The Novelty Pocket-Knife.

Your Name and Address on one side—Three Bees on the other side.



(THIS CUT IS THE FULL SIZE OF THE KNIFE.)

Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife.

The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible celluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle is placed the name and residence of the subscriber, and on the other side pictures of a Queen, Drone, and Worker, as shown here.

The Material entering into this celebrated knife is of the very best quality; the blades are hand-forged out of the very finest English razor-steel, and we warrant every blade. The bolsters are made of German silver, and will never rust or corrode. The rivets are hardened German silver wire; the linings are plate brass; the back springs of Sheffield spring-steel, and the finish of the handle as described above. It will last a last-time, with proper usage.

Why Own the Novelty Knife? In case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it; otherwise to try to destroy the name and address, would destroy the knife. If traveling, and you meet with a serious accident, and are so fortunate as to have one of the "Novelties," your POCKET-KNIFE will serve as an identifier; and in case of death, your relatives will at once be notified of the accident.

How appropriate this knife is for a present! What more lasting memento could a mother give to a son, a wife to a husband, a sister to a brother, or a lady to a gentleman, the knife having the name of the recipient on one side?

The accompanying cut gives a faint idea, but cannot fully convey an exact representation of this beautiful knife, as the "Novelty" must be seen to be appreciated.

How to Get this Valuable Knife.—We send it postpaid for \$1.25, or give it as a Premium to the one sending us THREE NEW SUBSCRIBERS to the Bee Journal (with \$3.00). We will club the Novelty Knife and the Bee Journal for one year, both for \$1.90.

GEORGE W. YORK & CO.

Chicago, Ill.

Please allow about two weeks for your knife order to be filled.



AMERICAN BEE JOURNAL

ESTABLISHED IN 1861 THE OLDEST BEE-PAPER IN AMERICA

42d YEAR.

CHICAGO, ILL., APRIL 17, 1902.

No. 16.

* Editorial. *

A New Director of the National Bee-Keepers' Association has just been elected to succeed Mr. Abbott, who resigned as director to take the position of General Manager. The new director is Mr. R. C. Aikin, of Colorado. This is an excellent choice, and should give unanimous satisfaction to all the bee-keepers of the great Middle West.

National Association Notes will be furnished to the various bee-papers by General Manager Abbott from time to time. His first "batch" appears on page 248. This is a good move, and will help the membership to keep in close touch with what is trying to be done by the Association. If you are not now a member, send your dollar at once to Mr. Abbott, and get in line to help the whole bee-keeping industry as well as yourself.

One Colony Continuously Starting Cells.—After a colony has been queenless for a considerable time, it can not be counted on for doing good work at starting queen-cells. But by the right management there need be no difficulty in having good cells continuously started throughout the entire season in the same hive, if not entirely by the same bees. All that is needed is the addition from time to time of frames of brood. This has a two-fold effect: It keeps up the supply of young bees, and also furnishes young brood to be fed, thus keeping up the preparation of a bountiful supply of the right kind of nourishment for the prospective queens.

Next National at Denver.—We have received the following notice from Pres. Hutchinson, announcing that the executive committee have selected Denver:

THE NEXT NATIONAL CONVENTION TO BE HELD IN DENVER.

Denver, Colo., has been selected as the place for holding the next meeting of the National Bee-Keepers' Association. Time—the first week in September. The exact date has not been decided upon, but the first session will probably be held Tuesday evening or Wednesday morning. The West has several times asked for the convention, and been put off with promises—that we must follow the G. A. R., or something of this sort, in order to secure the needed reduction of railroad rates. This year the G. A. R. meets at Washington, away to one side of the country. We met there several years ago, and only about 20 members were present—the most of those from near by. The West has been

going ahead with great leaps and bounds, and can rightfully claim recognition. The Colorado State convention, last fall, was the equal of many meetings of the National Association. And in all probability the Colorado State Bee-Keepers' Association will meet with us in joint convention. If held at Denver, the bee-keepers of Utah, California, Texas, and all of the great West will be able to "get there." I firmly believe that a convention can be held at Denver that will be the equal of any ever held.

Of course, the first question asked will be: "What about rates?" Well, they are all satisfactory, or, of course, we could not go to Denver, as a convention without low rates on the railroads was never a success. The National Letter Carriers' Association holds its annual convention in Denver during the first week in September, and an open rate to everybody will be made at that time. A representative railroad man told Mr. Working (the Secretary of the Colorado State Bee-Keepers' Association) that the regular fare outside of Colorado would be one fare, plus \$2.00, for the round trip, with a regular rate of one fare for a round trip in Colorado; while there have been made some specially low rates from some points in the East. From Chicago the fare will be only \$25 for the round trip. From St. Louis it is \$21. From St. Joseph, Kansas City, and Omaha it will be only \$15. Rates from points still further East have not yet been definitely settled.

Bee-keepers in the West will need no urging to come; to the bee-keepers of the East I will say, take the trip. It will open your eyes, not only in regard to bee-keeping, but to the wonderful possibilities of the great West. Your tickets will give you all of the time you wish to see Colorado's wonderful mountain scenery—"The Switzerland of America." Don't miss this opportunity of seeing its wonders, and mingling with its bee-keepers—the men and women with great, big hearts.

W. Z. HUTCHINSON, Pres.

We are glad that Denver has been selected. This choice will not be regretted, for those hustling Colorado and other Western bee-keepers will simply do their best to have even a bigger and better convention than Chicago ever had; and if they succeed (and we believe they will), none will be more delighted than those who helped to make the last National such a great success in this city, in 1900.

Remember that Denver is the place, and the first week in September the time.

Another thing: Don't fail to plan to go. There is ample time for everybody to get ready to attend the convention. And those Denver bee-keepers will need to make large preparation for the crowd, in addition to furnishing a generous sample of their fine climate.

The Formation of Nuclei seems to be considered by some as a complicated affair only to be undertaken by those of much experience. In reality there is nothing mysterious or difficult about it. Any one can take two or three frames of brood with adhering bees and put them in a hive and set the

hive on a new stand. That makes a nucleus, and the only difficulty in the case is to make sure that the queen is not taken along with the bees, and to make sure that too many bees will not return to the old hive. Some guard against the latter by imprisoning the bees for a certain length of time before putting them on the brood. Some do the imprisoning after forming the nucleus, closing the entrance tightly with green leaves. Within two or three days the leaves will shrivel so as to allow passage for the bees if the bee-keeper himself does not open the entrance.

Some take no precaution except to use for the nuclei bees that have been queenless two or more days. Queenless bees are much better than others as to staying where they are put. Take two or three frames of brood well covered with bees from a queenless colony, and put them in an empty hive, and the work is done. If you want to make more sure, you can brush in some extra bees, or you can fasten the bees in for 24 hours.

Manufactured Comb Honey Again.

—Last month we received the following communication from Rev. A. E. Taylor, of York Co., Pa.:

EDITOR AMERICAN BEE JOURNAL.—

Dear Sir:—I clipped the enclosed from the Philadelphia Record some weeks ago:

"It was recently announced in a Chicago paper that a car-load of manufactured honey, in the comb, had been received in that city from California. In reply to this the publisher of the American Bee Journal has offered \$1,000 for the sight of a single pound of manufactured comb honey. He adds that he has been making this offer for 20 years without finding a taker."

I send it, first, to say that I manufacture comb honey; and, second, to say that you had better call in your offer, if you made such, as some one may claim it. I do not claim any reward.

I manufacture comb honey because—first, I get honey in that way, whereas I would get none otherwise; and, second, I get a better product.

You may, if you wish, inquire of W. H. Huntzger, principal merchant of our town; Dr. J. C. Channell, Mr. S. C. Kocker, Geo. Weitzel, or H. L. Keller.

Respectfully,

A. E. TAYLOR.

Upon receipt of the above, we wrote Mr. Taylor, telling him he was just the man we were looking for; we also enclosed 40 cents in stamps for two sample pounds of his "manufactured comb honey," and asked him to forward them, securely packed, by express at our expense, or return the stamps. In a few days we received the following:

MESSRS. GEORGE W. YORK & CO.—

Yours of the 6th at hand. I do not pretend to "manufacture comb honey by machinery, without the aid of bees." That would imply that I am a creator or secreter of wax, and I

do neither; that I construct comb; that I make a chemical change in the compound of sugar and fruit, which I give them, into honey. It would be as if a ranchman raised cattle without breeding-stock. Such an effort would result as did Aaron's effort at making a god.

You would be safe in adding six units to your offer, for since the world began man hath created nothing; nor hath he entered into the secret of insect architecture; all the paper-makers together could not make one hornets' nest.

I prepare the material out of which bees give me a product which the best judges of honey pronounce superior to the natural product in both taste and keeping quality.

Enclosed please find stamps returned as per request.

Respectfully,

A. E. TAYLOR.

And so endeth another booster. In his first letter to us he distinctly said, "I manufacture comb honey." In his reply he says: "I do not pretend to say I manufacture comb honey," etc. We wouldn't care to be compelled to sit under his preaching, and help pay for keeping him alive. He belongs in the mistaken crowd instead of the Taylor family. But, thank the Lord, there are few such as he among the preachers.

But we will not "call in" that offer of \$1000 just yet. We prefer to wait and let a few more ignorant ones bite on it. It's pretty good bait—a genuine offer. And we are not afraid of being called on to pay the money, because there is no such thing as manufactured comb honey—made without the aid of bees.

Weekly Budget.

MR. WARD LAMKIN, of Cayuga Co., N. Y., passed through Chicago recently on his way to Colorado, where he contemplates purchasing and keeping bees. He left his 200 colonies in splendid condition at his New York home, and in good hands for the season.

MR. F. K. SCHALOW, of Kern Co., Calif., was in Chicago lately, to dispose of a car-load of extracted honey which his firm (Weems & Schalow) had produced last season. They have about 1000 colonies, and their crop in 1901 was about 70,000 pounds. Mr. Schalow was formerly from Wisconsin, but prefers to live in California now.

AN ARKANSAS APIARY is thus described, as well as its owner, by a friend:

Mr. S. M. Campbell, of Crawford Co., Ark., requested me to write about his success in bee-culture and send it for publication. This will show what can be done if a person just tries.

Mr. C.'s home is high up on the mountain, and a wearisome drive it was to get there. It is only four years since he settled on this place, cleared the land for cultivation, and brought with him 3 colonies of bees and 28 Langstroth hives. His former employer, Mr. Hayworth, from whom he got the bees and hives, saw no profit in them, as he said that one year they are a feast and another a famine; he wanted to go into chicken-raising, and told Mr. Campbell that if he would hew the logs for a chicken-house he could have the bees, hives and all, for the work.

Mr. Campbell had some knowledge of bees in the old-fashioned way, that is, in log-gums, which were always plentiful on his father's

place, and supplied their own table and many of the neighbors with honey; and, of course, he knew that if bees were handled rightly, well taken care of, they would yield a handsome profit, and therefore the bargain was closed.

The logs were hewn in three days; 4 more colonies were added to the lot, making 7 in all to begin with. The first year he took 600 pounds of section honey, and increased to 13 colonies; the honey sold for 10 cents a pound.

The following year was a failure, but the bees stored enough honey to winter them. In the meantime Mr. Campbell had studied up bee-culture. It opened his eyes and gave him new courage not to forsake but stick to the bees, as a good year would surely come again, and would prove that his bees were a profitable investment. Mr. Campbell says the "old reliable" American Bee Journal is surely worth its weight in gold to the bee-man.

The following year the bee-yard was looking fine, with 30 strong, hard-working colonies; the season was good, and an average of

Section work in this apiary is done away with, and all the honey is put up in half-depth frames, cut out and sold as bulk comb honey in from 1-pound to 50 pound cans. In this way one can get two supers to one of section honey, and obtain the same price here, with a great deal less work.

Mr. C.'s plan is to tier up as long as they work, by raising the super when two-thirds full, and placing the empty one next to the brood-nest. Sometimes there are as many as six supers on one hive. In hot weather the hives are raised from $\frac{1}{2}$ to 1 inch, according to the strength of the colony, and covered with light boards for shade, as they work much better, and it also keeps the combs from melting down.

Mr. C. gives the bee-papers and books on bee-culture due credit for his success. There are some people not far from this place who also keep bees and give their ideas about bee-papers in this way: "Mr. C. had better save his money that he yearly squanders in books and papers, and invest it in hogs; it would profit him more." Those people did seem to



APIARY OF S. M. CAMPBELL, OF CRAWFORD CO., ARK.

72 pounds of section honey per colony, with an increase of 30 colonies, resulted. That was a feast after the famine.

By this time Mr. Campbell began to handle bees in the practical and profitable way; he had studied their ways and doings, and it became a duty performed with pleasure, as he said. Bee-study is the finest study a person can get into.

The year 1900 was a poor one in this part of the country. To begin with, in the spring the bees did well, and the prospects were for a good season, but the dry weather of late summer and fall cut short the honey crop, and therefore they stored only 35 pounds per colony, and increased to 74 colonies.

In the meantime, Mr. Campbell hitched on to chickens, thinking a little side-line would not hurt, and might bring in a few dollars; or, as the good woman said, some pin-money; but the hawks, the owls, and the cholera, came, and got the pin-feathers, and of course forgot to leave the money for the pin-money, consequently the chickens were dropped, except what are needed for home use.

The year 1901 was started with 108 colonies, and over 3500 pounds of honey was taken off, and still they are working hard to close the season with a yield of 5000 pounds, by gathering the honey-dew from the hickory trees, from which it is just dropping to the ground.

This morning (Oct. 27, 1901), at early dawn, as we sat watching them coming in heavily laden with the sweet dew which they had gathered so early, and in fact as busy as little bees, they fairly fell down in clusters at the front of the hive, crowding each other to get in to unload and be off for some more.

know all about bees, and perhaps invested their money in hogs, but so far as the writer could see they have neither hogs nor honey, and a mighty sorry looking bee-yard.

Mr. Campbell is also a member of the National Bee-Keepers' Association, and therefore feels safe in regard to spraying, and whatever may come up, and would encourage every bee-keeper to join the Association.

The picture shows Mr. Campbell's home yard. The man with the smoker is Mr. C., the little girl "Fanny" is the keeper of bees in swarming-time; Gibson, who stands on the hive, takes a great interest for a small lad—he has a colony of his own, and some day may make a bee-man.

A FRIEND.

Sweet Clover—(To the Mossback.)

Yes, cut and slash sweet clover down—
Don't stop to ask its name;
Call it a weed and grub it up,
And throw it in the flame.

Let bigotry and ignorance
Have now their fullest sway;
Don't stop to get a new idea,
But mow the plant away.

Let fragrant ragweed, burdock sweet,
And prickly lettuce grow;
It wreathes the mossback's face with smiles
To see such things, you know.

Just find the rut that father trod,
And be content with that;
He always cut sweet clover down,
And that is what we're at.

—Gleanings in Bee-Culture.

Convention Proceedings.

The Chicago Convention.

Report of the Semi-Annual Convention of the
Chicago Bee-Keepers' Association, Held
Dec. 5, 1901.

BY A SHORTHAND REPORTER.

(Continued from page 229.)

GROUND CORK FOR WINTER PACKING.

"Is ground cork as good, or better than sawdust for winter packing?"

Mr. Coggs—Where can ground cork be obtained?

Dr. Miller—Wherever they sell grapes that are imported from California.

Mr. Coggs—It is safer than sawdust, but it is hard to obtain. I have been inquiring for a year or two.

Mr. Chapman—There is a place here in the city where they manufacture corks. But I get my supplies entirely where Dr. Miller suggests—from the grocer. I get it from the imported grapes that come from Spain—they come in casks. I find it is an excellent material. It is impervious to moisture and allows for considerable circulation of air. I find it an excellent packing material, the best that I have been able to find. I have used excelsior and ground cork-dust, and I consider the latter much the better.

Mr. Coggs—Sawdust is good enough for me. Of course it is very cheap, but you must have it dry. I have used it for years, and I don't care for anything better. Mice won't work in it, because it will tumble down. It don't give them a chance.

Mr. Dadant—In regard to sawdust, there is a good deal of difference. Sawdust, where they saw logs, is very coarse, pieces of wood, really, but the sawdust of rip-saw is altogether different from the other sawdust. It is in fine, long strings, not exactly excelsior, but something similar. It holds together and will keep out the heat or cold. Sawdust from a fine-cut saw is very good. Has any one ever tried the fine sawdust as compared with the other sawdust for keeping ice? That will tell you as well as anything. If it will keep the ice cold—compare that with the coarse sawdust and you will find how much less quantity will keep your bees warm, or the ice cold.

Dr. Miller—Mr. Coggs, what kind do you use?

Mr. Coggs—Hardwood. Set the saw so as not to cut too big a chip, consequently it will be finer than if a larger chip is cut; I endeavor to get the finer sawdust.

Dr. Miller—Do you have any preference for hard or soft wood?

Mr. Coggs—No, doesn't make any difference. I don't pay any attention to that. We all know that in cutting basswood, pine or hemlock, they set the saw so as to take a chip a little over an eighth of an inch, while in cutting hardwood they can't set the saw so as to take as large a cut, and it makes finer sawdust.

Dr. Miller—How do planer-shavings compare?

Mr. Coggs—They are too loose.

Mr. Dadant—Too dusty.

Mr. Hintz—How thick a covering do you put on for winter?

Mr. Coggs—Well, on some I have on three, four, five inches, and with two inches I have wintered them. My packing boxes won't allow more than two inches with a heavy Brussels carpet before the dust is put on. These Brussels carpets—you might think I was extravagant, but I can get them at two cents a pound at any junk-shop, and they are something worth knowing about to bee-keepers. They will last for years. Two cents a pound is nothing, you know.

Mr. Clark—Do you use a Hill's device over the frames?

Mr. Coggs—No, sir.

Dr. Miller—I think we will be interested if Mr. Coggs will tell us how he packs his bees for winter.

Mr. Coggs—There are usually some holes so it gives the bees a chance to go through over the top-bars. Sometimes I pick up a little stick about a quarter of an inch through, and tack that on top, and lay the carpet on that.

Mr. Moore—Mr. Coggs, how many colonies have you in winter quarters this year?

Mr. Coggs—1600 or 1700, I think.

Mr. Moore—What is your percent of loss?

Mr. Coggs—Eight or ten percent, because I don't re-queen. Young queens are the key to a good record.

Dr. Miller—I would like a word concerning packing over the frames. I never use cork or sawdust, but of later years I use planer-shavings altogether. If I use these shavings five or six inches deep it is too much. If I use about two inches, $1\frac{1}{2}$ to $2\frac{1}{4}$ inches, it is just right, in my locality. If the shavings are too deep they become dampened, get wet on the top, and don't dry out. If I leave only $1\frac{1}{2}$ to 2 inches I have never known them to get damp. They keep dry, and keep the bees dry. I have now 300 colonies wintering in that way. I built a cellar purposely to winter bees, 36×40 feet. I don't use it at all now. I lose from one to three percent of my bees during the winter, and, as Mr. Coggs says, it is usually from neglect of putting in good queens in the fall. Too much chaff can be put over the bees for winter, and I suppose too much sawdust or too much ground-cork could be put over them.

Mr. Sylvester—Do you use a cushion?

Dr. Miller—Just about three thicknesses of burlap over the combs, and then put the shavings right in. There is one other thing I want to mention—about mice. The man who will let mice get into his hives doesn't look close enough to his work, I think. Some hives, of course, are old, and they have decayed bottoms. Such hives should be set on a good, solid board, and the entrance should be so guarded that mice cannot gnaw it. I tack a piece of tin on the bottom-board and a piece above on the hive so that mice cannot get in—they can't gnaw in. If I don't, they will gnaw in and destroy the bees, and cut the comb down and make bad work every way.

Mr. Whitney—I use planer-shavings for packing my bees. The last two years I haven't lost a colony in wintering. I use a burlap sack with the planer-shavings packed in it about three inches thick. I pack it down solid and then press it down into the upper part of the hives. I have never had any trouble since I commenced using planer-shavings, after packing down solid so they would remain compact. I think, however, if I could get hold of cork-dust I would use it, or that kind of filling.

Mr. Hodge—Do all who have spoken use the chaff hive? It seems to me there is nothing spoken of but top packing. Is there no side-packing?

Mr. Riker—No side-packing in my packing. I have used chaff hives to my detriment. In our locality the weather sets in cold, and cold enough for ice to collect in those chaff hives, and it doesn't melt if the sun should shine for a day or two; but in the thin-wall hives—just the single one-inch lumber or $\frac{3}{4}$, the sun can work on them and melt the ice, so we let the sun get right on it, where in chaff hives my experience is it remains there too long.

Mr. Whitney—Not quite pertinent to the question, perhaps, but I am a little sensitive and I have used two or three kinds, and I don't want anything but the chaff hives.

Mr. Josephson—I have not so many colonies of bees, but three years ago many bees died in the country. In my locality there was one bee-keeper who had 56 colonies in winter quarters and took out 4 in the spring. I had 27 in chaff hives, with about six or seven inches of packing (planer-shavings), and I took out 26 colonies in the spring.

Mr. Whitney—That's my experience. Last year I put in about 58 colonies and took out just as many. I use planer-shavings for packing in the top, in the second story.

Mr. Dadant—We have been wintering our bees for years in hives that have double boards on the north side—which is always the back with us—doubled on one side, division-board side, and we pack the top of the hives full of leaves. When my father began keeping bees here, which is about 58 years ago, he noticed that in a deep gully of the woods where there was six inches of leaves, if the leaves kept dry you could almost dig any time in the hardest winter, and that gave him the idea. We keep our bees under trees, and gather the regular leaves whenever dry, which is very often in the month of November, sometimes December. We have of late years wrapped up the hives with the same material by making slat-work with lath—common plasterer's lath—which we wrap around the hive, and afterwards we rake it full of leaves on all sides but the front; that shelters them on all sides but the sunnyside. Now as to the chaff hives: I agree with Mr. Riker. We had 80, years ago. We sold some of them. We have 20 or 30 of them now. They don't average wintering as well as the others. Not that they are not good in certain sections, but if we have a very cold snap that will last two or three weeks, and the weather gets mild and remains mild, the chaff-hive bees will come out best; but six or seven weeks of cold, and one warm day, during that warm day they are still cold, and they don't know it is a warm day. The others find out as soon as there is one bright day, and they have a flight,

and those in the chaff hive are shut up, and unless we disturb them they will not come out, because the inside of the hive is cold, and everything is cold, and the result is they will very often suffer and die, when bees in some other hives, which are seemingly exposed, come out all right.

(Continued next week.)

Contributed Articles.

No. 2—Improving the Races of Bees.

BY ADRIAN GETAZ.

IN a previous communication (page 55), I insisted on inbreeding, showing that in other kinds of domestic animals inbreeding could be, and had been, practiced successfully, provided all defectuous animals were rejected, otherwise the defects would go on increasing all the time, as well as the good qualities of the stock.

In breeding for improvement it is supposed that the apiarist has selected the best stock obtainable; it may be supposed that he has succeeded in improving it more or less. Then it is evident that any outside stock would be inferior, and, if introduced, would cause deterioration. We may set down as a rule, "No introduction of inferior stock under any condition."

Should we begin with two queens of different stocks—one for the drones and one for the queens, or use the same for queen and drones?

I don't know as it would make much difference, provided both are equally good. In starting with two different stocks, more variations could be expected, but less certain of transmitting the qualities already possessed.

I would choose some of our best breeds of five-banded bees. Some of them are as good and as gentle as any ordinary Italians, and have the advantage of capping their honey whiter. I have tried them.

We must control the drones. That is, arrange so that our queens cannot mate with any other drones than those of the colony we have selected. There is no need of controlling the individual drones except to destroy the undersized or otherwise defectuous ones. There is nothing in the appearance of a drone that can guide us or show us what will be the honey-gathering or other qualities of his daughters; and therefore no choice can be made, except that the only drones flying should be those of the stock selected.

There is only one way to do it, that is, to postpone the rearing of queens (and drones) until the honey-flow is over, and the general destruction of drones has taken place.

There are several advantages in adopting that plan. One is that the young queens have a whole honey season to be tested. Right here, the question might be raised whether a one-year test is enough. I think those decidedly inferior could be removed after the first year test. Those acceptable, especially if they are nearly equal, might have a second year test before the final choice is made. After a decidedly superior queen is obtained, I should use her for queens and drones, until a better one is reared. If the best two queens were nearly equal, I think I would use both. Contingencies will probably occur. For instance, the best honey-gathering stock might be decidedly vicious, and a crossing with a gentler stock might be necessary. In estimating the value of a queen, the strength of the colony and all the circumstances having an influence on the amount of surplus obtained should be taken into consideration.

The rearing of queens will be discussed from a technical standpoint in a future contribution.

INFLUENCE OF THE FEED.

Some writers have insisted that the worker-bees can transmit to the young bees some of their qualities, such as honey-gathering, gentleness, etc., either directly through the feed they prepare for them, or indirectly through the feed they give to the queen.

The question is a very important one. If that opinion is true, then, in order to improve our present races of bees, we will have to select not only the queens and drones, but also the workers. Needless to say that the problem would be considerably complicated.

Fortunately, it is an error. To the uneducated that opinion seems very plausible; to the one possessing even

an elementary knowledge of physiology the error will appear at once.

Only those who have tried it know how difficult it is to explain a scientific subject in a way that even the least educated can understand it. Nevertheless, I will try it.

We have here, say, two plats of land. One is poor clay land, the other is rich loam. In the clay we sow some wheat, and in the loam we plant corn. Would you say that the clay was the cause of the wheat being wheat and the loam was the cause of the corn-plant being corn?

Would you say that if the corn had been planted in the clay, it would have acquired some of the wheat characteristics, and if the wheat had been sown in the loam it would have acquired some of the corn peculiarities?

No, you would not. The land or feed has an influence on the development of the plant, but not on its characteristics. The wheat will be wheat in whatever ground it is sown; but it will be puny and weak on poor land, and tall and thrifty on rich land. So with the corn.

Let us take another example at the other end of the line: Frequently in the Southern States, when a mother cannot nurse her baby, a colored wet-nurse is employed; but it has never been observed that she could transmit any "nigger characteristics" to the baby through her milk.

Sometimes a wet-nurse is not obtainable. Cow or goat milk is resorted to. Would you say that some of the meekness of character of the cow has been transmitted to the child through her milk, or that some of the contrariness of the goat has been acquired in the same way?

No, you would not. And any man who would advocate such a transmission, would not have to go very far before being asked if he had not been raised on ass's milk-himself.

Yet some one may insist and ask if there is not some possibility of the worker-bee adding (something) to the feed that might have some effect similar to that of the egg of the female and the sperm of the male. No, there is none. There is nothing in the honey-sac or the stomach of the worker that can produce a living germ similar to the egg of the female or the male germ. There are only glands producing substances similar to the saliva or the stomach-juices of the higher animals. And if there was, these germs would be useless. Put a piece of wood in the fire and burn it. You say it is destroyed. No, it is not; it is only transformed—a part of it is now ashes, and another part smoke and gases.

So it is with the food. You eat meat, fruit, milk, etc. All these substances go through several transformations fully as great as when you burned that piece of wood. Some finally become flesh, some bones, some nerves, etc.; some are actually "burned" in the lungs and produce the heat necessary to the life of the body. So it is with bees. And any living germ that might chance to be among the feed would be transformed (or destroyed as such) as effectively as the rest.

Full details and proofs cannot be given here on account of lack of space. They can be found in the text-books on physiology.

An argument often presented is this: The queen never gathers honey, never stings, never feeds the brood. How can she then transmit to her workers qualities that she never possessed? Is it not reasonable to suppose that "somehow or other" these qualities come from the worker?

The argument at first seems to be pretty strong, yet, after all, there is nothing in it. If you look at it closely; you see that the meaning of it is that the offspring of the queen must necessarily be like her.

But what are the facts? A queen not mated lays eggs as well as one that is mated. According to the above argument such eggs should produce only queens. But, instead of that, they produce only drones, and nothing but drones. This seems to me conclusive, and shows that the progeny of the queen is not necessarily limited to being similar to herself.

EXAMPLES OF THE WORKERS.

Very often we have colonies of bees addicted to robbing, or exceedingly cross. The apiarist changes the queen in hope to correct the evil. To his surprise (if he is a novice) the workers from the new queen are as bad as those of the old one.

Yet nothing else could be expected. Bees follow each other's example almost invariably. Let a bee, in a time of scarcity of nectar, find some honey. She sips a load, hurries home and starts back for more. The other bees of the same colony, noticing her movements, follow her. By and by the other colonies also notice the proceedings and take part in the operations, until the whole apiary is in an up-

roar. The bees from the new queen simply follow the example and action of those of the old queen.

SURVIVAL OF THE FITTEST.

In a measure, the workers do influence the future generations, but it is in a very indirect way. If the workers of a colony are defectuous in honey-gathering or some other essential qualification, that colony will probably die during the following winter, queen and all. That race of bees will disappear.

On the other hand, a race of bees better than the average will prosper, send out swarms, and eventually predominate, while less gifted ones will stay behind or even disappear.

INFLUENCE OF THE MALE.

It is often said—and it is the opinion generally admitted—that the male has a greater influence on the offspring than the female. The question is almost impossible to settle.

When breeding from parents possessing the same qualities, it is impossible to tell from which the offspring inherited its characteristics. For instance, let us choose the case of a calf descendant of a bull and a cow both of pure Jersey stock. That calf probably will possess all the traits of the Jersey stock. Did he inherit it from the cow or the bull, or equally from both? We cannot tell.

Let us try it another way. Let us cross two very different stocks; for instance, a Shorthorn bull with a Jersey cow. Now, if the male has more influence than the female, the calf should be more like a Shorthorn than a Jersey. Yes, it should be, but it is not. In crossing very different stock, the offspring is sometimes like the mother, sometimes like the father, sometimes takes equally from both, and sometimes exhibits particularities (or variations) that neither parent possessed.

We see such a case when crossing black with Italian bees. Some colonies are uniformly two-banded, some nearly black, and some have bees of all shades and colors from the three-banded to the full-black. Nevertheless, all or nearly all the stock-breeders will tell you that the male has the greatest influence.

Before proceeding any further it may be well to mention that in crossing different stocks, the qualities that are the best "fixed" are those which are transmitted, rather than the others.

What do you mean by "fixed"? In breeding Jersey stock the originators have chosen a certain well-known color; they have raised exclusively from cows and bulls possessing that color. Their successors have followed the same rule, and that color has become "fixed", that is, invariably possessed by Jersey animals.

Now to return to our subject: The cows or mares owned by the majority of farmers and breeders are of no particular stock at all—common, scrub, hybrids, and nondescripts of all sorts, sizes and colors, and nothing "fixed".

When needed, the services of some high-grade hybrid or pure-stock bull or stallion are secured; then the calf or colt inherits chiefly the qualities of his father. Why? Chiefly, and possibly altogether, because the father is of a better stock and possessed of stronger and better "fixed" characteristics. Perhaps to some extent to his sex, but certainly not much, if at all.

For full information on this subject, see the text-books on breeding stock; in preference the German writers. Their works are far in advance of ours. Also Darwin, Wallace, Huxley, etc., on the origin and variations of species.

The conclusion drawn from the study of the higher animals cannot be strictly applied to the bees. In the higher animals, the concourse of both sexes is necessary to the reproduction, whether the offspring is male or female. With bees the case is different. The drone has no father and is exclusively the son of his mother. The female (worker or queen, for both come from the same kind of egg) is born exclusively from impregnated eggs. More than that, the impregnated egg produces females and never males. This seems to show that the female element comes rather from the drone; and, it is very possible—even probable—that the workers and queens inherit their qualities chiefly from the drone. We cannot, however, reach a final decision until careful and extensive experiments are made. On this subject see the text-books, especially Dzierzon and Cheshire. Knox Co., Tenn.

(Concluded next week.)

Spreading Brood in the Hive in Spring.

BY G. M. DOOLITTLE.

SEVERAL subscribers to the American Bee Journal wish me to give an article on spreading the brood in the bee-hive in spring, and what is to be the object to be obtained. To this I will say that it is a common trait in our American people—that of desiring to get all that is possible into the "now" of life—they are not being willing to wait till another year for what, with a little extra exertion, can be gotten this year; and so it comes to pass that in almost every pursuit in life we see a reaching forth for the fruits of *to-day*, and the bending of every energy and nerve to accomplish great results during the present season. And bee-keepers are no exception to this rule.

The old and natural way was to allow the queen-bee from four or five years in which to lay her 700,000 to 800,000 eggs Nature had provided her with, but the Yankee push says she must lay all of these eggs in from one to three years, if the thing is possible, and if the science of apiculture is to demand our attention. Hence many plans have been devised to stimulate the bees in spring, so that they in turn would feed and coax the queen to lay the greatest possible number of eggs, said eggs really meaning the laborers in the harvest-field.

Without going over the many plans devised to accomplish the object sought, I will simply say that after trying nearly all, I consider the mode of stimulating known as the "spreading of brood" the best of any, for by it the queen can be coaxed to lay to a greater extent than by any other which I have tried.

Before describing the plan I wish to say that it requires great care and considerable experience to be successful with it, for an injudicious move will often make the colony worse off than it would have been had it been let alone.

As soon as we can reasonably expect warm weather has come to stay, which in this locality is at about the time the cherry and plum trees bloom, we go to a colony of bees and lift out the combs to see the shape the brood is in. If it proves to be a good colony we will find brood in five or six combs, the two central ones being well filled, while the outside ones have little more than half a frame full. Finding a colony in this condition at this time of the year, we do what is called "reversing the brood-nest," that is, we put the two central combs, or those having the most brood, at the outside, and those having the least brood in, in the center between the full ones. Now the six combs of brood occupy the same place in the hive that they did before, except that those having the least are in the center of the brood-nest. This places the most advanced brood near the outside of the cluster of bees and the youngest in the center, and allows the queen to lay her eggs in the warmest part of the nest, instead of the coldest part, as she was doing before. The bees are also averse to an empty comb-space in the center of their nest, so see that it is filled in the shortest time possible, thus coaxing the queen to fill those empty cells with eggs in less than one-half the time she naturally would.

If the weather keeps favorable, in about a week we go to this hive again and take one of the combs from the next outside of the hive, one having considerable honey in it, and after moving the combs along till we come to the center of the brood-nest, we insert this comb, after having broken the sealing to the cells containing honey, by passing a knife over them flatwise. The bees go at once to removing this honey, and in doing so are stimulated to feed the queen to a greater amount, and the heat of the colony is increased so that the queen fills the cells with eggs almost as fast as the bees remove the honey, through this still greater incited activity.

In this way we keep on inserting combs till all in the hive are filled with brood. Should it so happen, before we secure brood in all the combs, that the queen does not keep up her egg-laying in the outside combs as the brood hatches, this can be remedied by again reversing the brood-nest.

As the season advances, so there is no danger from chilling, through a greater number of bees and warmer and more settled weather, two frames can be inserted in the center at a time, every week, if need be.

If all has worked well the hive should be filled with brood in a little over one-half the time it would have taken if let alone, so that double the number of workers will be ready for the harvest, if we have planned our time of commencement wisely, than otherwise would have been.

If the honey harvest comes very early in your locality you will want to commence to spread the brood five or six

7 The Premiums offered this week are well worth working for. Look at them.

weeks before this harvest, in order to meet the harvest with the maximum number of bees. If you have a late harvest, then govern yourself accordingly; but remember that the earlier you commence, the more care is needed.

To show the harm that may arise, let us suppose that you have a moderate sized colony which is carrying all the brood it can keep warm in moderate weather. We go and insert a comb in this nest, and by so doing cause the colony to spread out so as to keep just so much more comb-space warm. Now it turns cold, and after a little the bees are obliged to contract the cluster to keep from being chilled, in doing which they leave the two outside combs of well-developed brood to perish, in order to protect themselves and the center combs containing eggs and the youngest brood. Without explaining further, all will see that much harm, instead of good, would result. Therefore I said at the outset, "care and experience" are necessary. With these great gain can be made by spreading the brood. Without them, the colony is much better off undisturbed.

Onondago Co., N. Y.

Association Notes

By EMERSON T. ABBOTT, St. Joseph, Missouri,
Gen. Mgr. of the National Bee-Keepers' Association.

The New General Manager has not gotten things entirely in hand yet, but desires to say to the bee-keepers of the country that there is a great deal demanding the immediate attention of the Association. The question of spraying fruit-trees in bloom has come up, and a member has appealed to the General Manager for aid. This will receive his attention at once.

A Bill Against Sweet Clover.—As has been announced in the bee-papers, an attempt has been made to pass a law in Ohio with a view of exterminating sweet clover. The General Manager has written a vigorous protest, in the name of the Association, to the chairman of the committee which has the bill in charge. Secretary Mason and Acting Chairman Root have seconded the efforts of the General Manager, and it is hoped the bill will be killed in the committee.

Director Miller has suggested that an attempt be made to get the Department of Agriculture to issue a bulletin on sweet clover. The General Manager will take this up at once with the Secretary of Agriculture, and see what can be done.

The Lie About Manufactured Comb Honey.—The question of manufacturing comb honey still continues to disturb the minds of city reporters, and the General Manager has also found it necessary to write vigorous protests in the name of the Association, to the New York Tribune, and to the Medical Brief, of St. Louis, on this subject. It remains to be seen what will be the responses of these publications.

The General Manager has also addressed a letter to the Chairman of the California State Board of Health on the subject of honey-adulteration.

Bee-Keepers Invited to Co-operate.—It is the earnest request of the General Manager that bee-keepers all over the United States and Canada be on the alert, and inform him at once if anything comes under their notice which tends to the injury of our industry. In the meantime it is hoped that old members will send in their dues promptly, and that bee-keepers everywhere will see the importance of sending in their dollar for membership fee. The new General Manager desires to say that all moneys received by him will be acknowledged at once, and those who send in membership fees and do not hear from them promptly should write and make inquiry about them.

The Change of General Managers.—The retiring General Manager has been absent from home, attending to his duties as a member of the legislature of Iowa, and for this reason there has been some delay in making the change, but if our friends will be a little patient, all will be in working order in a short time, and we will make a long pull, and a strong pull, and a pull all together, for victory.

St. Joseph, Mo. EMERSON T. ABBOTT, Gen. Mgr.

* The Afterthought. *

The "Old Reliable" seen through New and Unreliable Glasses.

By E. E. HASTY, Sta. B Rural, Toledo, O.

DIFFERENCE IN LONGEVITY IN BEES.

That was a shrewd experiment of Mr. Olmstead's, on page 149. As it is very suggestive, and very easy, it should be repeated by many observers until we can have a settled knowledge of what it amounts to, and what it teaches. Among your dark-colored bees choose the colony that puts the most white food around the hatching eggs; also choose the one that does the least in that line. Give each a frame of eggs from very yellow stock (both from the same queen if possible), and then observe how long the yellow bees live in the two respective colonies. Mr. Olmstead's observation that the ones extra-well fed in early babyhood live two weeks the longest is almost beyond belief.

Yes, Mr. Olmstead, those bees that forget all about putting any honey below in their zeal for filling sections are very valuable bees; and there is serious danger that Nature will weed them out by starvation unless man interposes.

WAX-WORMS IN PINE AND BASSWOOD.

As to the preference of wax-worms, my memory is that they eat the pine and the basswood about equally when they burrow between a section and the adjacent wall. But my memory sometimes plays me tricks. Some pine is very soft while some is quite hard—and basswood is usually pretty tough. Page 147.

THAT SEVEN-YEAR-OLD QUEEN.

Hello! Mr. Riker gets himself into good and ancient company. Virgil gives seven years as the extreme age of the bee—and Mr. Riker claims a seven-year-old queen. Probably the ancients, most of them, didn't know that workers lived to a less age than the queens. And Mr. Riker will encounter lots of Thomases who will tell him that anything beyond five years must be a mistake. Page 150.

HONEY CROP VS. YELLOW BANDS.

Queen tested for honey crop worth three times as much as the one tested for yellow bands. Right—and might have said more and still be right—Miss Emma Wilson. Even when you studied the harness of the horse you intended to drive you were not any "right-er." But the provoking mischief of it is that it costs much more than three times as much. And when the testing is fairly complete the queen is not as young as once she was. Page 151.

OILED MUSLIN HIVE-COVERS—YELLOW SWEET CLOVER.

Is the hive-garment projected by R. McCradie, page 154, a practical thing? (Oiled muslin to cover all the hive except the entrance.) The object sought is valuable. A dry wall is warm when the sun shines even a little; but a soaked wall uses up more of the heat evaporating its surplus water. If the device can be kept from clinging—as wet garments are inclined to do, and thus imparting lots of moisture to the wood—I think it would be worth while in any cold climate prone to frequent rains and drizzle driven by winds. Possibly one might profitably and as well go further and fare better with regular outside packing and a big piece of corrugated iron for top.

And so there is one yellow sweet clover that blooms three or four weeks earlier than the white. Page 172.

DON'T BE A PROPOLIS-RUBBER.

If dirt or propolis are rubbed on to sections to make the Thomas family believe in them, and the ingenious rubber gets found out, the family aforesaid will have "confirmation strong, etc.," and the honey-man will find his mouth awkwardly stopped. Guess it would be safer, as well as more strictly moral, to let alone. Page 154.

SHADE FOR BEES.

My opinion of the shade proposed by Albert Wiltz. is that it is a wonder that some one has not proposed it before. Artichokes are a vegetable I am unfamiliar with. There'll be some hot days before they are big enough to suffice, will there not? With artichokes, sunflowers, asparagus and grapes on trial,

which would furnish a sufficient shade first? On rich ground, and for small hives set low, I suspect rhubarb could be made to beat either one—but that would die down and leave us just when we wanted it most. On the whole, artichokes look very promising for an apiary that is to be moved every year. As to a settled location, I might go hunting for a weak point and say that perhaps spreading around in the ground might bother some in years after the first. Page 154.

THE JOUNCER THAT RAMBLER DOTH JOUNCE.

I like patient persistence, and Rambler seems to have it when his jouncer is involved. I guess we will have to confess that some people find it useful, and succeed in using it without doing serious mischief. The pointing of the corner-posts is a good idea. They penetrate the soil a little and favorably reduce the all-fracturing emphasis of the jouncer. Honest in him to confess that thin honey gets badly jounced out sometimes. Page 158.

SETTING THE PRICE OF HONEY.

I fear, Comrade Akin, that the price of honey is sometimes set not by "the best and up-to-date methods," as you put it, but by the cheapest—and also decidedly reprehensible methods—which ought not to be allowed at all. Some time we'll set the pure-food commissioners after the offenders—so we will. Page 158.

Questions and Answers.

CONDUCTED BY

DR. C. C. MILLER, Marengo, Ill.

(The Questions may be mailed to the Bee Journal office, or to Dr. Miller direct, when he will answer them here. Please do not ask the Doctor to send answers by mail.—EDITOR.)

Swarming with No Increase.

I am desirous of having my colonies swarm without increasing their number, and want to know a good way to unite the swarm and old colony. Last year I placed the old colony over the swarm, a few days after the swarming, but the plan was not satisfactory. My honey-flow is light and continuous during the summer, the only surplus coming after the middle of August. NEW JERSEY.

ANSWER.—I'm not sure I can tell you any way that will be entirely satisfactory. Here is one way you might try, which would have the advantage of leaving you a young and vigorous queen: When the colony swarms, kill or remove the old queen—an easy thing to do if your queens are clipped. A week later destroy all queen-cells but one. Or, wait till you hear the young queen piping, then destroy all queen-cells remaining.

Flavoring Bogus Honey—Bee-Bread Flavor—Drones.

1. What is the name of the stuff the manufacturers of bogus honey use to flavor the product? I think I knew the name when I was a child, and saw my father put a few drops of it on a tray of rye-flour which he placed in the open air in early spring, to encourage the bees to begin brood-rearing, I suppose.

2. Is there anything used to put in extracted honey to imitate the flavor of bee-bread? I bought a small jar of honey in a Chicago store last September, and there was no particles in it to indicate bee-bread, but there was such a decided flavor of bee-bread that the honey was quite spoiled for me. And I wondered if it could be imitated, and was as a supposed guarantee of genuineness, for I never knew that the flavor would so permeate the honey that it would remain when not a particle was visible in the jar. I thought to take it to Mr. York and ask him about it but I never got to go. The flavors of different kinds of honey interest me very much, and when I taste a new kind of honey I wonder from what it was gathered. The most finely and deliciously flavored honey I ever tasted was a box of comb honey I bought in Chicago, last fall, and I imagined it came from apple or peach blossoms.

3. My other question was about drones. I may be displaying unpardonable ignorance, but I want to know your idea. I have understood that drones are always hatched from unfertilized eggs. Lately I was reading a manuscript in

which the writer—an old, experienced bee-keeper whom I had known, personally, from childhood—said that he had watched the queen laying eggs in drone-cells, worker-cells and queen-cells, on the same comb, while he held the comb in his hands, and those eggs hatched out drones, workers and queens, according to the cells. ILLINOIS.

ANSWERS.—1. I do not know that anything but honey is used as a flavor. I have had no personal experience in that line, but I have sampled honey that was adulterated, and the only flavor I could detect was that of honey and glucose. Still, it may be that other flavors are used. I suspect that the flavor you have in mind that your father used is anise, for that is used sometimes, I believe, to bait bees.

2. I never heard of anything being used to imitate the flavor of bee-bread. There are so many different flavors in pure honey that it is possible there may have been nothing wrong except that the bees got the honey from flowers that yielded the disagreeable flavor. It may also be that the honey was adulterated. I doubt that the honey you liked so well was from apple or peach bloom. At the time of fruit-bloom bees are not generally in sufficient force to store surplus, and all the honey then gathered is used in brood-rearing.

3. There is no conflict between your understanding and the statement of your friend. All the eggs of the queen are unimpregnated as they leave the ovaries. In its outward passage the egg is impregnated as it passes the seminal sac or spermatheca if the egg is destined for a worker-cell or a queen-cell. But if the egg is destined for a drone-cell it is not impregnated. In the absence of a queen, workers sometimes undertake the business of egg-laying, but their eggs, being unimpregnated, produce only drones, even if laid in worker-cells.

Now it would be just like you to ask whether the queen voluntarily decides what eggs shall or shall not be impregnated, or whether there be something in the nature of the case by which she is mechanically compelled to lay the right sort of egg in the cell. To that question I refuse to give any answer. I must draw the line somewhere. But if in place of that question you will ask one to which I know the answer, I will cheerfully make reply.

Management for the Most Honey.

By which of the following plans do you think the most honey can be obtained in a case where bees in an 8-frame hive swarm about May 30, and the surplus honey commences to come in about June 15, and lasts until about July 15, and then a fall flow from buckwheat commencing about Aug. 1?

1. By allowing them to swarm May 30 and getting a little of the white surplus from both parent colony and the swarm, and building them both up for the fall flow?

2. Or, by not allowing them to swarm, by giving them more room, until June 15, and then practice the Heddon method to get most of the bees with the swarm? With this plan the parent colony does not get strong enough to do much surplus work on the fall flow. NEW YORK.

ANSWER.—The answer to your question depends upon the proportion the buckwheat harvest bears to your early harvest, and also upon the number of colonies you have. If you have enough colonies to stock the field, then your better plan is to keep down increase as much as possible. If there is no danger of overstocking, your first will be better if the buckwheat crop is large compared with the earlier crop. The second plan will be better if you expect only half as much from buckwheat as from the early flow. This is only a guess and I will be glad if those who have had experience will set me right if I am wrong.

Getting Increase and Honey.

1. What method would you advise in making nuclei? I want to increase, and I also want honey.
2. Or, would you divide and give an untested queen?
3. Would you divide the strongest colonies or the weakest ones? IOWA.

ANSWERS.—1. The question is just a little like asking how to build a house. Much depends upon circumstances as to the kind of house, etc. So it is with nuclei. It is an easy thing to tell how to start a nucleus, but just the best way depends on circumstances. You say you want to increase and also have honey, which is more of a help than many questioners give. In the first place, you should inform yourself thoroughly by the study of your text-book as to general principles, and then you are less likely to make mistakes. Making the

guess that you do not care for nuclei except to build up into full colonies, you can wait till a colony swarms, then about a week after hiving the swarm divide the old colony into as many nuclei as you can by taking two frames of brood and bees for each, making sure that each nucleus has a good queen-cell in the center of the bees so it will not be chilled. It will be well for you to fasten the bees of each nucleus in its hive for 24 hours by plugging the entrance with green leaves. If you have one or more choice colonies, build them up in advance of others, so that they will first swarm. Draw brood from other colonies to build them up.

2. You can make faster work by buying untested queens, but of course it will cost more. If your untested queens make an improvement in stock, they may be the cheapest in the long run.

3. It will perhaps be best to leave the strong colonies for

honey. So many things have a bearing, however, that it is hard to say just what will be best without knowing all about what you will do.

Spring Dwindling in California.

Did you ever hear of bees having spring dwindling in this part of the country? From what I can learn from the "A B C of Bee-Culture," that is what our bees have. The hives are full of honey and the bees all gone, or nearly. We have had plenty of rain so far this season for this section, but we are overstocked with bees at present. If you know of any remedy, please let me know.

CALIFORNIA.

ANSWER.—There seems to be no remedy except the coming of good weather to allow daily flight.

QUEENS!

Buy them of H. G. QUIRIN, the largest Queen-Breeder in the North.

The A. I. Root Company tell us our stock is extra-fine; Editor York, of the American Bee Journal, says he has good reports from our stock from time to time; while J. L. Gandy, of Humboldt, Neb., has secured over 400 pounds of honey (mostly comb) from single colonies containing our queens.

We have files of testimonials similar to the above.

Our Breeders originated from the highest-priced, Long-Tongued Red Clover Queens in the United States.

Fine Queens, promptness, and square dealing, have built up our present business, which was established in 1888.

Prices of GOLDEN and LEATHER-COLORED QUEENS, before July 1st:

	1	6	12
Selected, Warranted.....	\$1.00	\$5.00	\$ 9.50
Tested	1.50	8.00	15.00
Selected Tested	2.00	10.50	
Extra Selected Tested, the best that money can buy..	4.00		

We guarantee safe arrival, to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep 300 to 500 Queens on hand ahead of orders. Special price on 50 or 100. Free Circular. Address all orders to

Quirin the Queen-Breeder,

PARKERTOWN, OHIO.

[Parkertown is a P. O. Money Order office.]

15A26t Please mention the Bee Journal.

BETTER THAN SPRAYING.

Don't lug barrels of water around when spraying. Use the poison direct. Our

Common Sense Dust Sprayer

and Insect Exterminator is a most ingenious device that is rapidly supplanting the old methods. It blows the finely powdered dust into every nook and crevice. Reaches the bottom as well as the tops of leaves. Destroys insects on plants, vines, shrubs and trees. Just as effective for vermin on poultry and pigs. More rapid than spraying. Descriptive circulars and testimonials free. HILL'S DUST SPRAYER CO., Box 16, ST. JOSEPH, MO.

Please mention Bee Journal when writing.

SWEET CLOVER

And Several Other Clover Seeds.

We have made arrangements so that we can furnish Seed of several of the Clovers by freight or express, at the following prices, cash with the order:

	5lb	10lb	25lb	50lb
Sweet Clover (white).....	\$.75	\$1.40	\$3.25	\$6.00
Sweet Clover (yellow).....	.90	1.70	4.00	7.50
Alsike Clover	1.00	1.80	4.25	8.00
White Clover	1.00	1.90	4.50	8.50
Alfalfa Clover80	1.40	3.25	6.00

Prices subject to market changes.

Single pound 5 cents more than the 5-pound rate, and 10 cents extra for postage and sack.

Add 25 cents to your order, for cartage, if wanted by freight, or 10 cents per pound if wanted by mail.

GEORGE W. YORK & CO.

144 & 146 Erie Street, CHICAGO, ILL.

GENERAL ITEMS

A Beginner's Report.

I bought one colony a year ago this winter, and when the time came to put on the super, I put on one with 28 sections, and in June they swarmed and I put on a super and had to take them off and put on more supers. In the fall I took off the honey and sold it for \$19.18, and that gave me the bee-fever, so my wife says, and I bought 22 colonies more, and caught 2 swarms, so that made 26 colonies. The 22 colonies that I bought cost me \$25.15 besides my work, but 7 of them I killed, as I thought they were too light in stores for winter. The 19 I have left are in good shape, I think; I put 7 into the cellar and 12 out-of-doors, with protection on the north and west. The ones in the cellar are in the best shape, hardly any dead; the ones that are out have from half to one pint of dead bees per colony.

My bees are almost all in Langstroth-Simplicity hives, but they are not on straight combs so I can handle them with pleasure. I have bought 10 Danz. hives, and expect to start right if I can learn the trick. I have chosen the Danz. hives to start with for comb honey, and if I have made a mistake I wish some of the veterans would straighten me out on that line. But there is one thing I do not understand about the hive, and that is, Mr. Danz. says if the bees do not build to the bottom-bars to reverse them. I should think if that were done the honey would run out, and the rest of the cells would be upside down.

E. B. PRICHETT.

Warren Co., Iowa, March 19.

Counteracting Honey-Lies.

After reading several items about "Lies About Honey," I began thinking, Is there no remedy? Yes, I think that there is one remedy, and the sooner it is applied the better for all producers of pure honey. It is organization. For the coming season ask the officers of the National Association to act as officers. Make it independent of the present organization for now, at least; if they wish to unite later, all well.

Each member pay his dues according to the number of colonies of bees, spring count. As soon as the season ends, each member should send a report of his crop. This would give each a good estimate of the crop all over the United States, and from each section, and be governed by the same in selling.

The officers should appoint a committee of investigation to look after the welfare of its members.

Each member should put his honey on the market under the seal of the organization, with his own name and address attached. This could be easily done with small stickers on each package.

If any adulterated honey be found on the market under the seal of the organization, the committee will look after the matter. If a member put it on the market, black-list him and expel him from the organization. If not

Tennessee Queens



ers a specialty. Discount after July 1st. Send for circular.

14A26t

Please mention Bee Journal when writing.

JOHN M. DAVIS,

SPRING HILL, TENN.

Wanted Comb and Extracted Honey!

State price, kind and quantity.
R. A. BURNETT & CO., 199 S. Water St., CHICAGO.
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GOOD WHEELS

MAKE A GOOD WAGON.

Unless a wagon has good wheels it is useless.

THE ELECTRIC STEEL

are good wheels and they make a wagon last indefinitely. They are made high or low, any width of tire, to fit any axle.

They can't get loose, rot or break down. They last always. Catalog free.

Electric Wheel Co., Box 16, Quincy, Ill.

Please mention Bee Journal when writing.

ITALIAN QUEENS and the WARFIELD STRAWBERRY...

D. J. BLOCHER, Pearl City, Ill.

Ask for our price-list and testimonials.

As we are spending the winter in North Dakota, all our correspondence, whether social or business (until further notice) should be addressed,

D. J. BLOCHER, Denbeigh, N. Dak.

4Atf Please mention the Bee Journal.

Please mention Bee Journal when writing.



DAIRYMEN ARE DELIGHTED

to meet those who work for us. Cow keepers always have money. We start you in business. You make large profits. Easy work. We furnish capital. Send 10 cents for full line of samples and particulars.

DRAPER PUBLISHING CO., Chicago, Ill.

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FREE FOR A MONTH

If you are interested in Sheep in any way you cannot afford to be without the best Sheep Paper published in the United States.

Wool Markets and Sheep

has a hobby which is the sheep-breeder and his industry, first, foremost and all the time. Are you interested? Write to-day.

WOOL MARKETS AND SHEEP, CHICAGO, ILL.

Please mention Bee Journal when writing advertisers.

a member, deal with the forgery according to law.

Let the business of this organization be known to all dealers and consumers as far as possible, and that they will not let any but pure honey pass under their name without punishment if the guilty can be caught. If need be, a reward could be offered for any adulteration passing under their name, if evidence could be had to convict the guilty.

I think that this would guarantee a pure article to dealer and consumer, and would increase both demand and price, and bring money to the pockets of the producers.
Washington Co., Pa. WM. R. MARTIN.

A Skunk in a Bee-Cellar.

I will tell how I got a skunk out of my beecellar, and I wish to know whether I did right. My cellar is under the dining-room, is 8x10 feet, with one window and a door on the outside on the south. I have 63 colonies—40 colonies on one side (8 hives long and 5 high), and the other 23 colonies across one end.

Well, Sunday morning I went down to sweep the dead bees from the cellar-bottom; it has a cement floor, and I noticed the bees were all stirred up. I thought mice had gotten in. I commenced to sweep the bees up. There was a barrel in one corner; I took hold of it and moved it, and there was Mr. Skunk. I started for the door, but he caught me. My, what a smell! My wife smelled it as soon as I did. I said, "Martha, there is a skunk in the cellar;" and she said, "Yes, and you got it!"

The next thing was to get him out. I could open the door and let him go out, but he would come in again. I could poison him, but he would likely go behind the hives, and I could not get him out without overhauling them. He had made the cellar smell, and I did not want to let him go. I set a steel-trap at the foot of the stairs, and put on some honey for bait, but he was too smart. About 4 o'clock I opened the cellar-door and he came out from behind the hives, but before I could shoot him he went behind the hives again. At 6 o'clock I tried it again, and got him. Do bees hear? I do not know. It did not seem to disturb them. I open the door at night to cool the cellar, and that is how he got in. Now I put on a screen-door also. Did I do right?
L. C. GREEN.

St. Francis Co., Ark., March 15.

[Yes, sir, you did just right. The proof of the pudding was in the eating—or the smelling. You got Mr. Skunk, and deserve to be congratulated upon your success. Perhaps the noise of the gun was so much less a disturbance to them than the "loud" perfume of Mr. Skunk, that the bees didn't notice the sound of the shot. Not every bee-keeper can go a-hunting in his cellar.—EDITOR:]

A Home Partnership Bee-Keeping.

My wife and I have kept a few colonies of bees for the last six years with different results—some years we would get little honey, other years a little more, and sometimes we had to feed; but last year being a very hot, dry season here, we were surprised by the quality and quantity of the honey gathered by the bees.

We keep only 5 colonies, and are trying to keep the number down to that, so we go through the hives once a week during the spring-time and cut out queen-cells, besides giving the queen plenty of room to deposit her eggs, by putting a second brood-chamber on top, and by transferring full brood-combs from the lower to the upper chamber, and filling in again with empty combs; we keep this up until the main honey-flow (sweet clover) starts in, then condense again by shaking all bees from upper chamber in front of hive, and put on two supers. Of course we get a good many brood-combs in the upper chamber filled with honey, but it makes fine winter stores. By thus handling them in the spring we get large colonies ready for the main honey-flow, and have very little swarming.

Last year the different flower-blooms and

Our New Catalog,

name and address and one will be mailed you **FREE**

describing and listing the finest line of **BEE-KEEPERS' SUPPLIES** in the world, is ready. If you have not been receiving a copy annually, send us your
G. B. LEWIS COMPANY, Watertown, Wis.
Special Agency, C. M. Scott & Co., 1004 East Washington St., Indianapolis, Ind.
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30 cents Cash paid for Beeswax.

This is a good time to send in your Beeswax. We are paying 30 cents a pound—**CASH**—for best yellow, upon its receipt, or 32 cents in trade. Impure wax not taken at any price.

Address as follows, very plainly,

GEORGE W. YORK & CO., 144 & 146 Erie St., Chicago, Ill.



SPLIT HICKORY VEHICLES

We put our honor against yours. If you want a new buggy or carriage this season, and would like not only to see it set up, but to use it and satisfy yourself that it is a bargain, we will ship you one on **Thirty Days' Free Trial**.

We believe our Split Hickory Vehicles are the best on the market at any price, and we believe you will give them a fair trial. If after thirty days you are not satisfied, return them to us. There will be nothing to pay. All this is fully explained in our new illustrated catalogue, which is free. Besides vehicles it shows a full line of harness.

OHIO CARRIAGE MFG. CO.,
Station 6, Cincinnati, Ohio.

Please mention Bee Journal when writing.

Marshfield Manufacturing Company.

Our specialty is making **SECTIONS**, and they are the best in the market. Wisconsin **BASSWOOD** is the right kind for them. We have a full line of **BEE-SUPPLIES**. Write for free illustrated catalog and price-list.

Marshfield Manufacturing Company, Marshfield, Wis.

7A26t

Please mention Bee Journal when writing.



29 YEARS SELLING DIRECT.

We are the largest manufacturers of vehicles and harness in the world selling to consumers, and we have been doing business in this way for 29 years.

WE HAVE NO AGENTS but ship anywhere for examination guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness. Our prices represent the cost of material and making, plus one profit. Our large free catalogue shows complete line. Send for it.

No. 232 Wagon has rubber covered steps and 3/4 inch Kelly rubber tires. Price, \$67.00. As good as sells for \$40.00 to \$50.00 more.

Elkhart Carriage & Harness Manufacturing Co., Elkhart, Ind.

Please mention Bee Journal when writing.

Yes, Sir!

The MUTH'S SPECIAL dovetail hive is a "Cracker Jack." COVER and BOTTOM-BOARD are absolutely warp-proof. We know because we are practical. Our illustrated catalog explains it all. You can have one by asking. Not a hive left over from last season. We sell the finest **SUPPLIES** at manufacturers' prices.

STANDARD BRED QUEENS, none better than our **BUCKEYE STRAIN** of 3-BANDERS and MUTH'S STRAIN **GOLDEN ITALIANS**. 75 cents each; 6 for \$4.00. Safe arrival guaranteed.

THE FRED W. MUTH CO.,

Front on Walnut Sts.,
CINCINNATI, OHIO.

Please Mention the Bee Journal when writing Advertisers.....

The Family Friend

An old and true friend that will help you in times of distress. When racked with pain you would give anything for relief. In the hour when the little child, too young to make its wants known, lies suffering, its little face drawn with agony; in the hour when the good wife, worn and tired, needs an arm to lean on; at all such times, when the calling of a doctor means a dangerous delay, besides great suffering and a heavy bill, there is nothing else so good as a bottle of

WATKINS' Vegetable Anodyne Liniment.

We receive numberless letters like these:

SAVED THE CHILDREN.

CLARA CITY, Minn., June 14, 1901.
We had five children sick with diphtheria last winter and carried them all through in one week without any doctor. Watkins' Vegetable Anodyne Liniment should be used at once as soon as any symptoms appear. We mixed two teaspoonfuls of Watkins' Liniment with two of vinegar and one of salt. Gave some of the mixture once an hour, also rubbed the Liniment on outside of neck.
OTTO PETER.

HORSES WOULD HAVE DIED.

SHIPSHAWANA, Ind., June 18, 1901.
I have used Watkins' Vegetable Anodyne Liniment for nine years and find it the best remedy for colic in horses I ever knew. I saved two horses with it that would have died. Cannot speak highly enough of it.
HENRY CATTON.

The best thing made for Cholera Morbus, diarrhea, flux, rheumatism, cuts, cramps, strains, burns, colic, mumps, sore throat, diphtheria, frosted limbs, etc. For horses and cattle it cures sprains, cuts, scratches, bruises, sweeny, colic, etc. Of course when you read this advertisement you may not feel the need, but the need of it may arise at any moment of the day or night, and then its worth can not be counted in dollars and cents. Order it the next time our agent calls, or if we have no agent in your county, send us your name and address at once, and we will see that you are supplied.

FREE! FREE! FREE!

We send out a beautiful 100 page illustrated Home Doctor and Cook Book absolutely free, and want to place your name on our mailing list. It is the cleverest and most complete thing of its kind ever issued. Write for one to-day.



J.R. Watkins

Wanted a Man. We want one good, open-eyed, young man in each neighborhood who has a little ambition, and an inclination to get on in the world, to write to us. We are in a position to start him in a good paying business of his own. We have lots of young fellows, "boys" you might call them, who are making a nice thing selling Watkins' Remedies.

The J. R. Watkins Medical Co.
10 Liberty Street,
Winona, Minnesota, U. S. A.



Have You Seen Our Blue Cat-

alog? 60 illustrated pages; describes **EVERYTHING NEEDED IN THE APIARY.** BEST goods at the **LOWEST** prices. Alternating hives and Ferguson supers. Sent **FREE**; write for it. Tanks from galv. steel, red cedar, cypress or fir; freight paid; price-list free.

KRETCHMER MFG. CO., box 90, Red Oak, Iowa.

Agencies: Trester Supply Co., Lincoln, Neb.; Shugart & Ouran, Council Bluffs, Iowa; Chas. Spangler, Kentland, Ind. 12E26t



The Business End of the NEW RUMELY SEPARATOR

Like all the "Rumely Goods" this is simply perfection. When coupled to our New Rumely Rear Geared Traction Engine they constitute a threshing outfit that not only makes big money for the thrasher, but saves grain and money for the farmer. They are durable beyond comparison and when you buy them you are done buying for years to come. Take a little time to think about how it would pay you to own such an outfit, then write us for free catalog.

M. RUMELY CO., La Porte, Ind.



\$300,000,000.00 A YEAR
and you may have part of it if you work for us. Uncle Sam's poultry product pays that sum. Send 10c for samples and particulars. We furnish capital to start you in business. Draper Publishing Co., Chicago, Ill.

200 EGG 2 SELF-REGULATING INCUBATORS IN ONE.
BANTAM 30 Days Trial. 100 eggs \$5.00
\$15. BUCKEYE INCUBATOR CO., SPRINGFIELD, OHIO.

Please Mention the Bee Journal when writing Advertisers *****

honey-flows succeeded each other almost every 10 days, commencing in March with maple and following with elm, willow, cherry, plum, apple, dandelion, black and honey locust, catalpa, white clover, mother-wort and sweet clover, the bees working all the time.

With all precaution we had 2 colonies swarm, but we put each of them back in their old hive; they stayed and were contented. These 2 colonies must have had poor queens, as they gave us the least honey, so we killed the queens the middle of August and introduced 2 new ones a few days later. We hope they will do well this season.

On May 28 we put two supers on each hive to give them plenty of room, and the bees went right to work in them. By the end of June sweet clover commenced to bloom, hot winds commenced to blow, and we thought that would end the flow, but just the reverse, for on July 22 we took off 184 filled sections; Aug. 21, 186 sections; Sept. 16, 183 sections; and by the end of the season we had taken from hive No. 1 (an 8-frame) 138 sections; Hive No. 2 (an 8-frame), 124 sections; Hive No. 3 (an 8-frame), 70 sections; Hive No. 4 (10-frame Danz.), 192 sections; and Hive No. 5 (10-frame Danz.), 77 sections, making a total of 601 sections. It was as fine white capped honey as was ever produced by bees, and all in 4 by 5 inch sections, divided by fences. Besides, we had about 30 unfinished sections, which we fed back to the bees for winter stores.

As we sell 6 pounds for \$1.00, it was quite an income from 5 colonies. We all like honey, so we have sold a little over half and kept the rest for ourselves and the children.

Hall Co., Nebr., March 12. GUS KOLLS.

Hiving Bees—Swarm-Catcher.

On page 206 is an item by Sarah Griffith on "Hiving Bees." For ten years I have not cut off a limb on which a swarm clustered. I never think of carrying the hive to where the bees have clustered—I always take the bees to the hive. I never try to put my bees on top of the hive; I have a better way. I have my hives all ready on the stand, and when a swarm comes out I lift the hive off and set it on the ground by the stand. I have a nice platform about 3 feet square that I lay down in front of the hive, that is just even with the entrance, so the bees can crawl right in when they are shaken out of the catcher. I always have a pail of water with a little salt dropped in and a dust-brush which I dip in the water and sprinkle the bees slightly in the catcher, then shake some of the bees out on the platform, but not too close to the entrance; sprinkle them a little, and with a stick tap on the side of the hive, and it would surprise you to see them rush for the entrance. When they get well started I can shake the others out of the catcher (not too close), or I can lay the catcher down and the bees will all leave and go to the hive, and the job is done.

I will now give a description of my swarm-catcher, which, I think, is a good one for many reasons.

It is 12x16 inches. Take thin boards, four of them. Take the short end of an iron square, which is 1½ inches wide, with this make lines 1½ inches apart each way on all four of the boards. Then with a ½-inch bit bore a hole just where each of the lines cross, except the center of two of the boards, there bore a ¾ inch hole, and make one hole square, leaving the other round. Then take another board ¾ or ¾ inch thick, big enough for a bottom (no holes in this). Now you are ready to nail the box; be sure to get the ¾ holes opposite each other; these are for the pole or handle, which is made square to fit the square hole and go through the box, the end made round to fit the round hole on the opposite side from the square. There must be a shoulder on the pole where made square. When the pole is nicely fitted mark it at the round end close to the box, then pull it out. Bore a gimlet hole through the pole for a pin to hold the box in place, and the catcher is complete. I have four of these, with handles of different lengths. I also have a number of light poles of different lengths, with hooks on the end to shake the bees from the limbs.

I have set this box up where the swarm had

just begun to cluster, and every one of the bees would go into it. I have held it up where the bees were thick and ready to cluster (on a limb), and taken in the box. When I go to take down a cluster I shake them gently until the most of them are off the limb on and in the box, then I hold the box out and clear from the place of clustering, and with a pole and hook shake the limb to keep the bees from settling. In a few minutes the bees are all in the box, then I can carry them anywhere or set them down, if another swarm comes out before this one is hived. I have had all my catchers full more than once. I have found bees and carried them 1/2 of a mile on my shoulder, all snug in this catcher. It is the best catcher I have ever tried, the bees take to it kindly, and are easily carried to where you want them. A slight jar on the handle, or pole, and the bees are on the platform ready for the hive.

Piatt Co., Ill.

J. W. C. GRAY.



Foul Brood—Bacteria and Their Relation to Diseases.

We speak of bacteria as causing diseases, then, again, as preventing diseases, and sometimes as curing diseases. These opposite and apparently irreconcilable properties in objects that can only be seen in a microscope, have caused the bacteria to be looked upon as mythical bodies by many intelligent persons who have not made them a special study. In explanation of the ways in which bacteria act, I propose adopting a method frequently used by lawyers in court, i. e., of stating a case, and I present the case of the boy learning to smoke. If a boy takes five or six whiffs of smoke from a tobacco-pipe, he will in three or four minutes turn pale and have to lie down. He will be a very sick boy for half an hour, when he will begin to recover, and in an hour he will be nearly well again. The nicotine poison in the tobacco acts quickly, and only for a short time. If the boy had taken one whiff the first day, two the second, and three the third, he could have gone on for a month, and, without being sick, have made himself an educated smoker—likely enough proud of his accomplishment. Men and women have educated themselves to take with impunity a dose of opium or morphine sufficient to kill a dozen persons, and men have been known to take, without any immediate ill effects, a quantity of arsenic sufficient to kill a score of men. They commenced by taking small quantities.

We will now suppose that there are bacteria which secrete nicotine poison as their weapon in the battle of life. The poisons secreted by the bacteria are very similar to the poisons formed in the leaves and flowers of plants, and the bark of trees, to protect them from their enemies, so that the nicotine bacteria are not impossible bacteria—they may exist. If the smoking boy, and another boy not educated to smoke, should be infected with these bacteria at the same time, no effects would be noticeable for several days, the period of incubation—say ten days—when the bacteria would begin producing nicotine. The smoking boy would not be affected by it, while the other boy would be killed very quickly—probably in an hour. Now, if we had taken this boy before he died, taken him on the day he was infected, or the day after, and had given him a whiff of tobacco-smoke, the next day two, and so on, until the bacteria commenced secreting nicotine, he might have been sick from the larger dose, but he would have recovered to find himself as accomplished a smoker as the other boy, the bacteria having completed his education.

We would have saved the boy precisely in the same way as a person bitten by a rabid dog is saved in the Pasteur Institution, and the smoking boy's protection from the nicotine bacteria shows how immunity from small-pox, by vaccination, may be produced at will.

PAGE
YOU Can't DREAM
out the secrets of the merits in the PAGE FENCES.
The farmers' experience worked them out.
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.
Please mention Bee Journal when writing

Bees For Sale.

75 colonies in Improved Dovetailed Hives, in lots to suit purchaser.

O. H. HYATT,

13Atf SHENANDOAH, Page Co., IOWA.
Please mention Bee Journal when writing

Wanted 20 Colonies — BEES —
IN ANY STYLE HIVE.
15A2t H. ALLEY, Wenham, Mass.
Please mention Bee Journal when writing

If you want the Bee-Book

That covers the whole Apicultural Field more completely than any other published, send \$1.25 to

Prof. A. J. Cook, Claremont, Cal.,

FOR HIS—

"Bee-Keeper's Guide."
Liberal Discounts to the Trade.

Queens

Either 3 or 5 Banded, from the best strains in this country. Un-
tested, 85 cents each; \$9. per dozen. Tested,
\$1.25 each.

I make a specialty of Queen-Rearing, and fill orders promptly. Remit by Post-office Money order to

DANIEL WURTH,

16E2t CARYVILLE, TENN.
(I have moved from Coal Creek.)
Please mention Bee Journal when writing.

The Carrier Says So....
Purchasers of our Rural Mail Box often write that they are "more than satisfied;" many say "it is a dandy;" others "a beauty;" and more than one has called it "a dream." Some say "it will last as long as I will want a box," or "will last 50 years," etc., but nearly all wind up with, "Our carrier says it is the best on the route."
BOND STEEL POST CO., ADRIAN, MICH.
Please mention Bee Journal when writing

Langstroth on... The Honey-Bee

Revised by Dadant—1900 Edition.

This is one of the standard books on bee-culture, and ought to be in the library of every bee-keeper. It is bound substantially in cloth, and contains over 500 pages, being revised by those large, practical bee-keepers, so well-known to all the readers of the American Bee Journal—Chas. Dadant & Son. Each subject is clearly and thoroly explained, so that by following the instructions of this book one cannot fail to be wonderfully helped on the way to success with bees.

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The Nuclei are 3-frame Langstroth, in light shipping-boxes. Prices: 1 for \$3.00; 5 at \$2.75 each.

Full colonies in 8-frame Langstroth hives (no super.) Prices: 1 for \$6.00; 5 or more at \$5.50 each.

All are f.o.b. shipping-point, and will be sent by express, a postal card notice being mailed to each purchaser a day or two before shipping the bees.

Send all orders to **GEORGE W. YORK & CO.,**
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It should be observed that it makes no difference whether we use the poisons of the bacteria or the bacteria themselves, weakened by growing in a cow or by overheating, or by merely drying—as Pasteur did the rabid dog's virus to protect against the disease—the result is the same. It is the poisons of the bacteria that cause and protect against the disease.

Our control over diseases, however, is very much limited by the great, and, I might say, insurmountable difficulties that have to be overcome in isolating the bacteria, and cultivating them so as to obtain their poison. The poisons can, as we have seen, protect against the acute infectious diseases caused by the bacteria, but when the disease has set in, the poison can not be used as a remedial agent in the disease. Anti-toxins are then used in a few diseases with some advantage.

Bacteria, although vegetable organisms, live like bees in colonies, and the individuals act in the interest of the colony. It is numbers that make them formidable. If a bee stings it dies, and if a bacterium secretes poison it dies in secreting it. Both lose their lives in defense of the colony. A bacterium can multiply, and a bee sometimes tries to multiply, but fails. The bacteria grow and multiply for some time before they commence secreting poison, and this explains the nearly uniform periods of incubation connected with most infectious diseases. The incubation period of hydrophobia varies to a great extent.

The nicotine bacteria did not grow in the smoking boy. Bacteria will not grow unless the surroundings are favorable. Parasitic fungi will not grow in strong and healthy plants, but will readily in weak plants, and the tubercle bacilli will not grow in strong animals, but will readily in the weak. When the bacteria are unable to poison and paralyze

the animal cells, the white blood-corpuscles and tissue-cells (Metschnikoff's Phagocytes) eat them, and when the tissue-cells become resistant to the bacteria-poison they quickly dispose of the bacteria. We find, therefore, that the attendants of the sick in small-pox, consumption, and fever hospitals, are more secure from the diseases than if less exposed to them. The exposure strengthens the resistance and preserves the immunity of the disease.

The animal cells know on the first touch of the bacteria whether they are dangerous or not, as one bee knows on the touch of another whether it is from a queenless colony or not. The dangerous bacteria are of small size, and may be known to some extent in that way. If we inoculate a person with small-pox virus, and at the same time vaccinate with vaccine virus, the vaccine virus will commence growing four or five days sooner than the small-pox virus, and will protect wholly or partially from the small-pox virus. This is the same kind of protection by which we proposed to save the boy, and the same that Pasteur used in hydrophobia. It is simply inducing a mild form of the disease during the incubation period to protect against the fatal form at the end of it. The animal cells offer less resistance to the growth of the bacteria producing the milder poison.

I have stated as briefly as possible the action of bacteria in causing and protecting against diseases, to show that we can not make use of the bacteria or their poison in curing or preventing foul brood. That all parasitic bacteria, however, are continually increasing the resistance of animals to bacterial diseases, is evident—the acquired resistance is transmitted and becomes hereditary. Also, to show that germicide remedies in the treatment of foul brood endeavor to

Maple Hill Poultry Farm

Is now selling **EGGS** for hatching from Standard Bred, High-Scoring stock. Barred Plymouth Rocks, Black Langshans, and Rose-Comb Brown Leghorns. Eggs, \$1.50 per 15; \$2.50 per 30. Stock in season.

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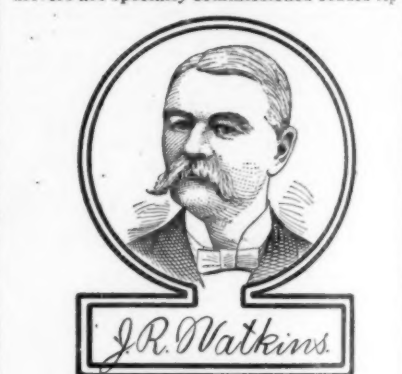
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Watkins Remedies—Our columns contain the advertisement of the J. R. Watkins Medical Company, a long established and favorably known medical house of Winona, Minn. This institution takes its name from its President, J. R. Watkins, who established the business in a small way about 35 years ago. It was incorporated in 1894. It has therefore had a long and prosperous career under the same management, who was the discoverer and compounder of all its remedies. The Watkins group of remedies have become household words in many parts of the country. In some sections the Watkins wagons have been traversing the country year after year, calling upon regular patrons who would not think of being without the Watkins remedies and extracts. People have no hesitancy in patronizing the Watkins wagons. The drivers are specially commissioned bonded representatives of the Watkins house. Elsewhere the mail order, selling direct from the laboratories to the consumer, has been employed. By these means an immense business has been built up, and this "old reliable" boasts the largest and best equipped house of its kind in the world.



The 1902 Watkins Almanac, Home Doctor and Cook-Book combined into one, is a most valuable book for preservation in any home. It is replete in discussions of ailments, remedies, recipes, etc. It is much larger for this year than ever before, and embraces many new and valuable features. Nothing untried or illy considered finds a place in it. Many of our readers are long-time patrons of the house. Such as are not should at least write for the above book, which is sent free, and correspond freely for anything desired in its line. Correspondence should be addressed to The J. R. Watkins Medical Co., 10 Liberty St., Winona, Minn. Please mention the American Bee Journal when writing.

BEST Extracted Honey For Sale

ALL IN 60-POUND TIN CANS.

Alfalfa Honey

This is the famous White Extracted Honey gathered in the great Alfalfa regions of the Central West. It is a splendid honey, and nearly everybody who cares to eat honey at all can't get enough of the Alfalfa extracted.



Basswood Honey

This is the well-known light-colored honey gathered from the rich, nectar-laden basswood blossoms. It has a stronger flavor than Alfalfa, and is preferred by those who like a distinct flavor in their honey.

Prices of Alfalfa or Basswood Honey:

A sample of either, by mail, 10 cents, to pay for package and postage. By freight—two 60-pound cans of Alfalfa, 7½ cents per pound; 4 cans or more, 7 cents a pound. Basswood Honey, ½ cent more per pound than Alfalfa prices. Cash must accompany each order. You can order half of each kind of honey, if you so desire. The cans are two in a box, and freight is not prepaid. **Absolutely Pure Bees' Honey.**

Order the Above Honey and then Sell It.

We would suggest that those bee-keepers who did not produce enough honey for their home demand this year, just order some of the above, and sell it. And others, who want to earn some money, can get this honey and work up a demand for it almost anywhere.

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make the surrounding conditions as unfavorable to the growth of bacteria as possible; and if this principle is kept in view the details in carrying it out will be easily understood as we proceed with the subject.

The condition must be exceedingly favorable to the growth of bacteria to enable them to destroy a colony of bees. The bees can protect their colony against bacteria to a greater extent than is generally supposed. No one has found foul brood in bees located in chimneys or garrets, or, in fact, in any home not purposely made for them. If we continue to favor the growth of bacteria in the hive so as to give the bacteria an advantage over the bees in the "struggle of life," and persist in cultivating the bacteria, and not the bees, we will, most assuredly, never succeed with disinfectants and germicides in getting rid of the disease caused by the favored bacteria.—A. W. SMYTH, in the Irish Bee Journal.

The foregoing interesting article will, no doubt, help to clear up matters for many readers. The implied statement, however, that foul brood is never found except in man-made hives, will hardly be accepted by many who think that one great difficulty in the way of getting rid of foul brood lies in the fact that it is impossible to control it in wild colonies in trees.

To make cows pay, use Sharples Cream Separators. Book Business Directory & Cat. 212 free. W. Chester, Pa.

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Please mention Bee Journal when writing.

THE SPRAYING SEASON.—Time moves so rapidly that trees and vines will be in blossom and setting their fruit again almost before we are aware of it. This means that the spraying season will be upon us shortly and that now is the best time to decide what means shall be employed to save the berries, fruit, etc., the coming season. Nobody stops to consider the advisability of spraying in these times. It is not only now thought to be advisable but absolutely necessary to successful fruit-culture. This, then, leaves the small fruit-grower, orchardist and others merely to the selection of the particular spraying outfit which he shall use. In this connection we wish to direct the attention of our readers to the line of spraying goods manufactured and regularly advertised in these columns by the Deming Co., of Salem, Ohio. In their bucket, knapsack, barrel and power sprayers they cover completely the entire line, and the Deming goods leave nothing to be desired as to quality, general utility, convenience and thorough and effective work. Their "Simplex," "Century" and "Peerless" barrel sprayers with special mechanical agitators and all brass working parts, are ideal general-purpose outfits. The Deming nozzles and spraying fixtures are of equal superiority. Write them for their illustrated catalog and Spraying Calendar, free. Send 10 cents in postage stamps for a copy of their valuable and comprehensive little book, "Spraying for a Profit." Please mention the American Bee Journal when writing them.

FOR SALE!

20 colonies of good business bees, well Italianized, in 8-frame hives; perfectly healthy, never had foul brood in apiary. \$4.00 a colony, f.o.b. Berlin, Wis. K. C. LUCKEY, 1416 Jennifer Street, MADISON, WIS. Please mention Bee Journal when writing.

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This Emerson stiff-board Binder with cloth back for the American Bee Journal we mail for but 60 cents; or we will send it with the Bee Journal for one year—both for only \$1.40. It is a fine thing to preserve the copies of the Journal as fast as they are received. If you have this "Emerson" no further binding is necessary.

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Went Like Hotcakes

A Nebraska customer when ordering a new supply of our fine Alfalfa honey in 60-pound cans, said: "The last I got went like hotcakes." So it does.

More people might do well they would order this honey, or basswood, and sell it. It not only goes off "like hotcakes," but it is mighty good on hot cakes.

See honey-offers on page 234.

GEORGE W. YORK & CO., 144 & 146 Erie Street, CHICAGO, ILL.

THE SURE HATCH INCUBATOR.—While hot-water incubators are very generally admitted to be superior to the hot-air kind, a number of manufacturers, with a desire to cater to every opinion and catch their trade either "coming or going," continue to make both kinds. Usually they claim that in the hot-water make they have something superior to anything on the market, and in the same breath weakly insist that their hot-air machines are "just as good." There is no such equivocation about our advertising patron, the Sure Hatch Incubator Co., of Clay Center, Neb. They direct their energies toward making the best incubator possible and always on the hot-water principle. Their straightforward course seems to have brought most gratifying results. Their good name has spread to all parts of the country. Wherever one of their incubators or brooders is introduced and put to the test, multiplied sales follow in a reasonable time. It is the proud boast of the Company that their most effective advertising has always been the work of their machines. The latest catalog of the Sure Hatch Incubator Co. is a valuable work on poultry-raising. Any of our readers interested should write for it, whether they contemplate buying an incubator or not. Look up their advertisement elsewhere in our columns and direct to Clay Center, Neb., mentioning the American Bee Journal.

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HONEY AND BEESWAX

MARKET QUOTATIONS.

CHICAGO, Apr. 7.—Choice white comb honey produced from basswood and white clover is scarce, and brings 15c; all other kinds of white is in over supply, and the market is weak at 12@13c; light amber grades, 10@11c; dark, 8@9c; candied and mixed lots, 7@8c. Extracted weak, with white ranging from 5@6c; amber and dark, 5@5½c. Beeswax selling at 32 cents, and in good demand. R. A. BURNETT & Co.

CINCINNATI, March 6.—The market in extracted honey is good with prices lower. Amber, for manufacturing purposes, brings from 5½@6½c; better grades from 7@8c. Fancy comb honey sells at 16c; lower grades hard to sell at any price. Beeswax strong at 27@30c. THE FRED W. MUTH CO.

ALBANY, N. Y., Feb. 21.—Our market has not been so empty of comb honey in a long time. Fancy white comb, 15@16c; No. 1, 15c; dark and buckwheat, 13@14c. Extracted, buckwheat, 6c. Beeswax, 30c. H. R. WRIGHT.

BOSTON, March 20.—The demand for comb honey remains good. Market ranges as follows: Fancy white, in cartons, 15@16c; A No. 1, 14@15c; No. 1, 13@14c; honey in glass-front cases about one cent less. Extracted, California light amber, 7@7½c; Florida honey, in barrels, 6@6½c. BLAKE, SCOTT & LEE.

DETROIT, Apr. 8.—Fancy white comb honey, 15c; No. 1, 13@14c; dark and amber, 11@12c. Extracted, white, 6½@7c; dark and amber, 5@6c. Beeswax, 29@30c. M. H. HUNT & SON.

CINCINNATI, Apr. 11.—Stock of comb honey here is larger than it ought to be at this time of the year, and this is why it is offered for very low figures. Water-white is sold at 14@14½c and hard to obtain; for extra fancy, 15c.

Extracted finds a steady sale, and amber is sold in barrel lots for 5@5½c; water-white alfalfa sells from 6@6½c, and white clover brings from 6½@7c. Beeswax scarce at 30c.

C. H. W. WEBER.

NEW YORK, Apr. 7.—Comb honey, last year's crop, practically cleaned up, but as we wrote a little while ago we had received new crop from Cuba, and are now receiving new crop from the South. Demand is fair at 14c for fancy white, 13c for No. 1, 12c for No. 2, and 10@11c for amber.

Extracted: The market is decidedly dull. Very little demand, with large stocks on hand, some of which no doubt will have to be carried over, and indications point to a further decline in prices. We quote: White, 6c; light amber, 5½c; amber, 5c; Southern, 5½@5¾c per gallon, according to quality. Even these prices are shaded in car lots. Beeswax, scarce and firm at 29@30c. HILDRETH & SEGELKEN.

BUFFALO, March 28.—Buffalo is very quiet on honey, except very low grades at very low prices. We quote extra fancy, 4c; No. 1, 12@13c; other grades, 8@10c. Extracted, 5@6c. Beeswax scarce; fancy, 28@30c; dark, 22@25c.

BATTERSON & CO.

SAN FRANCISCO, March 12.—White comb, 11@12½ cents; amber, 8@10c; dark, 6@7 cents. Extracted, white, 5½@—; light amber, 4½@5c; amber, 4@—, Beeswax, good to choice, light, 26@28c; dark, 24@25c.

While spot stocks are of rather light volume, holders show more inclination to unload than they did a month ago. Although quotable values are without marked change, concessions are granted to buyers which would not have been thought of at the beginning of the year. A large proportion of the honey now offering is comb of medium grade.

WANTED. EXTRACTED HONEY

either large or small lots; parties having same to offer, send samples, and best prices delivered at Cincinnati, Ohio. We pay cash on delivery. THE FRED W. MUTH CO., 104tf Front and Walnut Sts., CINCINNATI, O. Please mention Bee Journal when writing.

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or other real estate may be found through me, no matter where located. Send description and price and learn my successful method for finding buyers. W. M. OSTRANDER, North American Building, Philadelphia, Pa.

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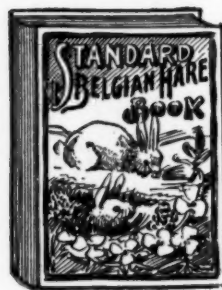
Our Falcon Sections and New Process Foundation are ahead of everything, and cost no more than other makes. New Catalog and copy of THE AMERICAN BEE-KEEPER free. Address,

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W. M. GERRISH, East Nottingham, N. H., carries a full line of our goods at catalog prices. Order of him and save freight.

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Very fine pure-bred BARRED PLYMOUTH ROCK Chickens and Eggs for sale at very low prices.

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Would you increase your profits? Then try the Danz. Hive. It's used from Maine to California. Read the following:

MECHANIC FALLS, MAINE, Feb. 28, 1902.
THE A. I. ROOT COMPANY, Medina, Ohio.

GENTLEMEN:—I am VERY, VERY pleased that you are willing I should recommend the Danz. hive. I have had a great many inquiries regarding it, and have not felt at liberty to recommend it over our regular hives. At first I was prejudiced against it, but the sales have increased without recommendations, and wherever I have sold they have bought again and praised the hive with extravagant claims, and I am forced to the conclusion that it is the BEST COMB-HONEY HIVE on the market.
J. B. MASON,
Manager North-eastern Branch The A. I. Root Co.

The above unsolicited testimonial speaks for itself.

M. H. Mendleson, of California, has just ordered 700 Danzenbaker supers. Sales are doubling every year. Still the demand for honey in Danz. sections is greater than the supply. If you are wise you will raise comb honey in Danz. hives.

THE A. I. ROOT CO.,
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